

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject Application. Support for the foregoing amendments can be found in the original specification, claims or drawings – no new matter has been introduced. Accordingly, Claims 1-3, and 5-21 are pending as listed above.

35 U.S.C. § 103 CLAIM REJECTION

Claims 1-3, 5, 6, 8, 9, and 12-20 & 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,473,411 B1 issued to Kumaki et al. (hereinafter, "Kumaki"). Applicant respectfully traverses the rejection.

ABOUT THE CLAIMED INVENTION

The claimed invention is directed to a method for wireless access to packet-based networks by mobile devices. The method involves host-based routing and permits handoff of a mobile device between domains with no perceived change of address. The method of the claimed invention provides a mobility solution; handoff notifications to nodes outside of the local domain or subnet, such as to the home agent and the correspondent node, are substantially minimized, making the majority of mobile device handoffs between base stations transparent to the home agent and the correspondent node.

A purpose of the present claimed invention is to provide a method of routing packets to a mobile device within the same packet-based subnet. There is no centralized mechanism for routing; rather, routing takes place over a

distributed network. If a router were to fail, the protocol handles mobility dynamically, such that it will rely on IP protocols to find a different routing path between one base station and another. This is distinct from centralized routing schemes relying on MSRs, in which case, a system is pre-programmed to respond to an MSR failure by utilizing a different MSR.

In the present claimed invention, data packets arrive either at the old base station (prior to handoff) or at the new base station (after handoff), thus no duplicate packets are sent over the wireless link. Handoff occurs at the network level, which minimizes the need for handoff notification to nodes outside of the subnet.

REFERENCES

The Office cites Kumaki in the 35 U.S.C. § 103(a) rejection. Kumaki discloses a mobile supporting router (MSR) device to be connected to Internet accommodating mobile terminals that carries out handoff of a mobile terminal from one base station to another at the data link layer, thereby requiring the management of two networks, the data link network and the IP network. Handoff occurs by switching transfer route at the data link level as to accomplish faster handoff than conventional techniques at the network layer. Kumaki also teaches that data packets are transferred to both the new and old base stations

Kumaki does not teach for handoffs at a network layer and does not teach for forwarding of packets to a single location. Routing is managed by an MSR, and therefore Kumaki does not teach host-based routing that is decentralized amongst nodes in a subnet.

CLAIM ANALYSIS FOR § 103 REJECTION

Independent Claim 1 recites a method that allows a packet-based network to establish a routing path to a mobile device having an address to receive packets, where the first address corresponds to a mobile device attached by a base station in one domain, and a home agent utilizing a second address for the mobile device when the mobile device is attached to the packet-based network through a base station in a separate (excluded from the first) domain. Base stations are fixed. When packets arrive at a domain route router, the router knows that a mobile host is present (by the subnet portion of destination address) in its domain and forwards it to the correct base station. Subsequently, packets conveyed over the Internet for delivery to mobile device are routed to the domain route router based on the subnet portion of the mobile devices' IP address. There is no burden on routers to know the mobile hosts location because it uses a default route if it doesn't receive path set up messages.

Specifically, the method of Claim 1 involves launching a path set up from a destination node (mobile device) that is received at a first router over first interface, and creating a routing entry that corresponds the destination node to the first interface. When a packet is received it is forwarded over the first interface after first router associated destination node address with routing table entry, and forwarding a handoff update path setup message – **for handoffs processed at a network layer** – when moving from second wireless base station to a first wireless base station if the wireless device is handed off from first base station to second. The message is used to alter routing table entries for routers of subnet, wherein the first address continues to be used for the

destination node (mobile device) if the second base station is in the same subnet.

The cited reference, Kumaki, fails to teach or suggest all of the claim limitations of the present invention because Kumaki fails to teach process handoffs at a network layer, and fails to teach a routing mechanism determined dynamically; one that is decentralized over a network of routers between base stations. Kumaki teaches a Mobile Supporting Router (MSR) which is a separate fixed device connected to the network to carry out centralized routing of packets. MSRs are pre-configured and cannot carry out dynamic routing of packets. Furthermore, an MSR operates on a **connection-oriented** network, and **not a** connectionless network, as taught by the present invention. Kumaki does not teach dynamic routing that is not dependent on a centralized router. The distinction can be seen by the following situation: a router failure. If an MSR were to fail, each base station would simply use a different, pre-determined, MSR, as MSRs operate in a centralized, pre-programmed fashion. In contrast, the present invention teaches dynamic de-centralized routing. If a router fails, mobility will rely on IP protocols to find a different route between one base station and another. The two routing schemes – centralized versus dynamic – are entirely distinct. As such, the present invention is believed to be distinguishable over the cited reference.

The Office recognizes that Kumaki fails to teach for **handoffs processed at a network layer**, but argues that it would be obvious to arrange Kumaki's system for handoff processing at the network layer. Applicant respectfully disagrees.

Applicant respectfully asserts that to modify the teachings of Kumaki for handoff processing at the network layer, per the Office's suggestion, would create precisely the problem that Kumaki sought to solve: the low throughput of software processing at the network layer creates a bottleneck in data transfer and routing. (See Kumaki, Col. 1, lines 40-55 and Col. 4, lines 28-30) Thus, Applicant believes Kumaki to teach away from the modification suggested by the Office and teach away from the present invention. As such, there is no motivation or suggestion to modify the reference as suggested by Office.

Assuming that modification was made to carry out IP switching on the network layer, as suggested by Office, the method of Kumaki becomes non-functional. Moving from a connection-oriented network to a connection-less network layer would prevent the MSR scheme from functioning because MSRs are pre-configured. Even if Kumaki were modified, routing remains centralized and as such, cannot occur dynamically. Thus, there is no motivation or suggestion for one skilled in the art to modify the teachings of Kumaki as suggested by Office.

Accordingly, Applicant respectfully requests withdrawal of the rejection of Independent Claim 1.

Independent **Claims 13 and 20** have the same limitation as **Claim 1**; handoffs processed at a network layer and teach a decentralized routing scheme. As stated and explained above, Kumaki does not teach these limitations. Kumaki teaches away from this limitation by providing a routing

device to solve the problems associated with using the network layer, such as slow throughput and bottlenecks.

Claims 2, 3, 5, 6, 7, 8, 9, 12 and 21 ultimately depend from Claim 1 and are allowable by virtue of this dependency. Additionally, these claims recite additional features that, when taken together with those of Claim 1, define methods that are not taught or suggested by Kumaki. Specifically, the present claimed invention provides a specific mobility solution; Applicant's claimed host-based routing minimizes handoff notifications to the home agent and correspondent node, does not depend on a centralized routing mechanism, and operates at the network level so that no notification is required to nodes outside of the subnet. Kumaki does not teach or suggest this routing method, as the methods taught by Kumaki are dependent upon using a data link layer to realize faster transactions and handle higher overhead signaling, and depend on a centralized mechanism for routing that creates more complex infrastructure, requires maintenance of two or more networks and sends duplicate data transmissions.

Allowed Claims

Applicant truly appreciates the Office's indication that Claims 10 and 11 would be allowed if rewritten in independent form, including all limitations of the respective base and intervening claims. However, Applicant believes that in light of the arguments presented above, amendment is not necessary.

Conclusion

In view of the foregoing amendments and remarks, Applicant submits that claims 1-3 and 5-21 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. If any issues remain that preclude issuance of this application, the Office is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Werner & Axenfeld, P.C.

Dated: 3/13/06
PO Box 1629
West Chester, PA 19380
610-701-5810

By: Kristin Mazany Nevins
Kristin Mazany Nevins
Registration No. 56,775